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Docket No.: 0112427.00132US1  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Dickory RUDDUCK et al.

Application No.: 10/727987

Confirmation No.: 7249

Filed: December 5, 2003

Art Unit: 3637

For: ADJUSTMENT DEVICE AND BUILDING  
ELEMENT

Examiner: W. S. Yip

**CLAIM FOR PRIORITY AND SUBMISSION OF DOCUMENTS**

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P.O. Box 1450  
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Dear Sir:

Applicants hereby claim priority under 35 U.S.C. 119 based on the following prior foreign applications filed in the following foreign countries on the dates indicated:

<u>Country</u>	<u>Application No.</u>	<u>Date</u>
Australia	PR 5540	June 7, 2001
Australia	PR 5541	June 7, 2001

In support of this claim, a certified copy of each said original foreign applications is filed herewith.

Dated: January 17, 2006

Respectfully submitted,

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Australian Government

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I, JANENE PEISKER, MANAGER EXAMINATION SUPPORT AND SALES  
hereby certify that annexed is a true copy of the Provisional specification in  
connection with Application No. PR 5541 for a patent by TELEZYGOLOGY  
PTY LIMITED as filed on 07 June 2001.

WITNESS my hand this  
Twenty-first day of November 2005

A handwritten signature in cursive script, appearing to read 'J. Peisker'.

JANENE PEISKER  
MANAGER EXAMINATION SUPPORT  
AND SALES

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**AUSTRALIA**  
**Patents Act 1990**  
**SPECIFICATION**  
**FOR A PROVISIONAL PATENT APPLICATION**

Name of Applicant: **TELEZYGOLGY PTY LIMITED**

Actual Inventor: **MICHAEL JOHN LAYBOURNE HORT  
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Invention Title: **Improved Building Elements**

The following statement is a description of this invention:

This invention relates to improved building elements useful in connection with the construction industry. The invention is applicable to the building of both internal walls and partitions and external walls, especially cladding. However, it is to be understood that the invention is not necessarily limited to these applications.

- 5 In some aspects, the invention represents an advance on the invention disclosed in international patent application No. PCT/AU97/00681, the contents of which are imported herein by reference. In two aspects, the present invention particularly represents an advance in the stud and joining clip disclosed in international patent application No. PCT/AU97/00681 (the "PCT Application").
- 10 The PCT Application disclosed a building element being a stud. The stud had a first set of channels and a second set of channels. Each channel in each set was adapted to receive a co-operating means for the purpose of mounting a panel or bracket on the stud. The first set of channels was parallel to and spaced from the second set of channels.
- 15 While the number of channels was not limited as to number, there were preferably three in each set. It was also preferred that the first set of channels was spaced from the second set of channels by a single web and this was illustrated in Figures 1 to 3, 6, 8, 10 and 12 to 20 of the drawings.

- It has now been found that the stud of the PCT Application can be produced in an improved form if the first set of channels is spaced from the second set of channels by first and second webs, being spaced from each other.
- 20

It has also been found that a modification of the stud can be produced to form a mullion which is particularly useful for external walls, especially in connection with glazed or cladding panels.

- 25 Accordingly, in a first aspect the present invention provides a building element suitable for use as a stud or mullion, the building element having a first set of channels and a second set of channels, each channel in each set being adapted to receive a co-operating means for the purpose of mounting a panel or bracket on the building element, the first set of channels being parallel to and spaced from the second set of channels,
- 30 characterised in that the first set of channels is spaced from the second set of channels by first and second webs, the first web being parallel to and spaced from the second web.

Each channel in each set has a base and in some applications it is useful to be able to screw through or otherwise penetrate the base. The use of two webs, spaced one from the other, can enable screws or other penetrating articles to be inserted through the base of a channel between the first and second webs, without affecting the strength of either web. This can be contrasted with the situation shown in Figure 1 of the PCT Application, for example. If it was desired to screw through the centre of base 13 of central channel 12 in Figure 1 of the PCT Application, the screw would penetrate web 11, affecting its integrity and possibly weakening the stud. That problem can be avoided by use of the building element of the present invention.

- 10 When the building element of the present invention is to be used as a stud, it is preferred that the first and second webs are located close to a centre line for the building element, the centre line extending from the centre of the first set of channels through the centre of the second set of channels. However, the building element of the invention may also be used as a mullion, in which case it is preferred that the first and second webs are  
15 located as far from the centre line as possible.

The building element of the present invention may be made of any suitable material but is preferably steel or aluminium. If desired, the building element of the present invention may be grooved, either to reduce mass or to enhance reception and retention of the co-operating means, or both. Preferred embodiments of these aspects will be  
20 shown in connection with the attached drawings.

The use of first and second webs can also serve to strengthen the building element and enable lighter or thinner material to be used in its construction while reducing the likelihood of twisting.

When the building element of the present invention is to be used as a mullion, it may be  
25 convenient if the form of one set of channels is different from the form of the other set of channels. Use of the mullion of the invention can provide a system of providing external cladding or facades to buildings with hidden framing. The framing can accept glass or cladding panels and can enable simplified fitting of such panels. The mullion can also provide draining for the facade. One set of channels can accommodate the glass  
30 or cladding panels, while the other can accommodate internal linings for the building structure.

In a second aspect, the invention provides a method for mounting panels or brackets on a building structure, using a mullion having a first set of channels and a second set of channels, each channel in each set being adapted to receive a co-operating means for the  
35 purpose of mounting the panel or bracket on the mullion, the first set of channels being

parallel to and spaced from the second set of channels by first and second webs, the first web being parallel to and spaced from the second web, the panel or bracket including the co-operating means, the method including the steps of:

securing the mullion to the building structure; and

- 5       connecting the co-operating means of the panel or bracket to at least one channel of the mullion.

The co-operating means may include a pair of resilient arms as disclosed in the PCT Application. Alternately or in addition the co-operating means may include a fastener capable of operating by remote activation as disclosed in International Patent  
10   Application No. PCT/AU99/00185, the contents of which are imported herein by reference.

The PCT Application also disclosed a building element being a joining clip. The joining clip was adapted to mount a panel or bracket to the stud also disclosed in the PCT Application. The joining clip included the co-operating means (to be received in each  
15   channel of each set of the stud). The joining clip also included means for connecting the joining clip to the panel or bracket. The co-operating means included a pair of resilient arms.

It has now been found possible to devise a way of making the clip disclosed in the PCT Application in more than one part. This is particularly useful because one part of the  
20   joining clip can be attached to the panel or bracket in the factory and the other part of the clip, which includes the co-operating means, can be transported separately from the panels and attached thereto on site. This can avoid any problem arising from damage to the co-operating means during transport.

Another useful feature of the new clip, in some embodiments, is the dimensional  
25   tolerance it allows in respect of alignment of the panel or bracket with the stud or mullion.

Accordingly, this invention provides, in a third aspect, a building element being a joining clip adapted to mount a panel or bracket to the stud or mullion referred to above, the joining clip including the co-operating means and also including means for  
30   connecting the joining clip to the panel or bracket, the co-operating means including a pair of resilient arms, characterised in that the joining clip has a first part which includes the means for connecting the joining clip to the panel or bracket and a second part

which includes the pair of resilient arms, the first part being adapted to mate with the second part.

Preferably, the first part permits simple attachment to the panel or bracket, for example, by adhesion, nailing or screwing. The first part may mate with the second part in any  
5 suitable way. Preferably, the first part has a protrusion adapted to snap into or slide into a channel on the second part. Of course, this arrangement may be reversed so that the second part has a protrusion adapted to snap into or slide into a channel on the first part. Other arrangements may be possible.

The first part may be regarded as a clip carrier, while the second part may be regarded  
10 as the clip. These terms will be used in relation to a preferred embodiment described in the attached drawings. It is also preferred that both the first and second parts are made of relatively resilient material, to assist in mating one with the other and also to provide flexibility for variation in site dimensions. The material of the joining clip may also be able to cope with expansion and contraction in situ.

15 The joining clip may be suitably designed so that it can also function as an internal drain in the panel assembly. It may, instead or in addition, form a seal for the panel assembly.

Instead of being constructed from relatively flexible material, such as plastic polymers, one or both parts of the joining clip may be made from more rigid material, especially  
20 for external use. For example, stainless steel may be used.

As indicated above, it is contemplated that the clip carrier may be attached to the panel in the factory. It is contemplated that the clip may be installed on site and the clip carrier attached to the clip on site. It is preferred that the mating between the first and second parts takes place by pushing the parts together and by pushing the second part  
25 into an appropriate channel in the stud or mullion. However, if desired, the first and second parts may be mated by sliding one or part of one into the other.

As mentioned above, grooves may be formed in the stud or mullion of the invention. Conveniently, at least some of these grooves may be made in channel walls. Complementary grooves may be formed on the resilient arms on the joining clip and  
30 may assist in locking the joining clip into a chosen channel, at least until it is desired to disengage the joining clip from the channel.

As will be apparent to one skilled in the art, it may be possible, using the joining clip and stud or mullion of the invention, to forward fix a panel to a stud or mullion. It is

also to be appreciated that the stud or mullion of the present invention may be used with the joining clip of the PCT Application, and that the joining clip of the present application may be used with the stud of the PCT Application, in each case with appropriate adjustments if necessary.

- 5 It is contemplated that the stud or mullion of the invention may include means allowing it to be adjusted vertically in situ.

The building elements of the present invention will now be described in connection with certain embodiments thereof, illustrated in the attached drawings. In considering the drawings, it is to be understood that these are for the purposes of illustration and are not  
10 intended to be limiting on the scope of the invention.

In the drawings:

Figure 1 shows, in perspective view, a first embodiment of the building element of the invention, being a stud, and also a first embodiment of a joining clip of the invention;

- 15 Figure 2 shows the stud and joining clip of Figure 1, together with the panel also present in Figure 1, all joined together;

Figure 3 is a cross-sectional view of a second embodiment of a stud of the invention;

Figure 4 is a perspective view of an embodiment of a mullion of the invention;

- 20 Figure 5 is a sketch of a sectional view of a building structure;

Figure 6 is a horizontal cross-section being an enlarged view of a form of the mullion according to the invention showing external cladding in place;

- Figure 7 is a vertical cross-sectional sketch showing how the external panels can be connected to battens and showing attachment of the mullion to the building  
25 structure;

Figure 8 is, in sketch form, a front elevational view of a building structure having glazed and cladded panels attached in accordance with the method of the invention; and

- Figure 9 is a similar view to that in Figure 4 but including detail of brackets into  
30 which glazed or cladding panels can be fitted.



Referring first to Figures 1 and 2, stud 10 has channels 12 arranged in two sets of three. Each channel 12 has a base, 13. Each set of channels 12 is separated from the other by parallel webs 36 and 38 which include reinforcing ribs 40.

Joining clip 16 is made of two parts, clip carrier 15 and clip 17. Clip carrier 15 is adapted to be attached by a screw or nail inserted between parts 20 and 21 through groove 31 into panel 18. Parts 20 and 21 on clip carrier 15 are adapted to push or slide into C-shaped channel 19 on clip 17.

Clip 17 has co-operating means comprising resilient arms 14a and 14b which can be forward fitted into one of channels 12. Arms 14a and 14b carry grooves or serrations 26 which can lock into corresponding grooves 30 in the side walls of channel 12.

Stud 10 includes further grooves 32 to reduce mass as well as screw locating grooves 34.

The walls of channels 12 may be bifurcated to include large grooves 42 to assist in reducing mass.

As already indicated, it is contemplated that clip carrier 15 will be attached to panel 18 at the factory, transported to the site and there mated with clip 17 which in turn is then fitted into channel 12 of stud 10.

Turning now to Figure 3, stud 50 is similar to stud 10 and more clearly illustrates grooves 30, 32 and 42. It will be noted, however, that stud 50 omits reinforcing ribs 40. Otherwise, stud 50 is very similar to stud 10.

Turning now to Figure 4, mullion 60 is shown in situ with panel 18 attached to channel 12 via clip 62 (as per the PCT Application). It will be observed that webs 36 and 38 are widely spaced, in contrast to the arrangement in Figure 3. It will also be noticed that while one set of channels 12 does not have bifurcations 42, the opposite set of channels 12 do carry the groove 42 in these bifurcations. Bracket 64 is shown in place, bracket 64 being adapted to carry a panel (not shown).

Cavity 66 in bracket 64 can provide drainage for the structure of which mullion 60 forms a part, while cavity 68 in mullion 60 itself can also provide drainage.

As shown in Figure 5, mullion 60 is shown attached to building structure 69 having horizontal slabs 70. Battens 72 are external of mullion 60.

In the sectional view of Figure 6, panels 18 are shown attached to mullion 60. Between battens 72 and mullion 60 are self-draining clips 74. Internal lining 76 is also attached to mullion 60.

In the sectional view of Figure 7, mullion 60 is shown attached to slab 70 by bracket 78.  
5 Self-draining clip 74 is shown connected to batten 72. Self-draining clip 74 may be capable of remote locking or unlocking as disclosed in International Patent Application No. PCT/AU99/00185.

The elevation of Figure 8 shows a three-storey building having attached to the facade thereof cladding panels 18a and glazed panels 18b.

10 With reference now to Figure 9, this shows the mullion of Figure 4 with the detail of batten 72. Shown in this Figure is corner connector 80 in which is seated cladding panel 18a or glazed panel 18b (not shown). Corner connector 80 can drain as shown at 82, for example.

It will be appreciated that modifications may be made in the scope of the invention and  
15 that the embodiments illustrated above are not limiting on that scope.

Dated this 6<sup>th</sup> day of June, 2001

Telezygology Pty Limited

By its Patent Attorneys

Chrysiliou Law

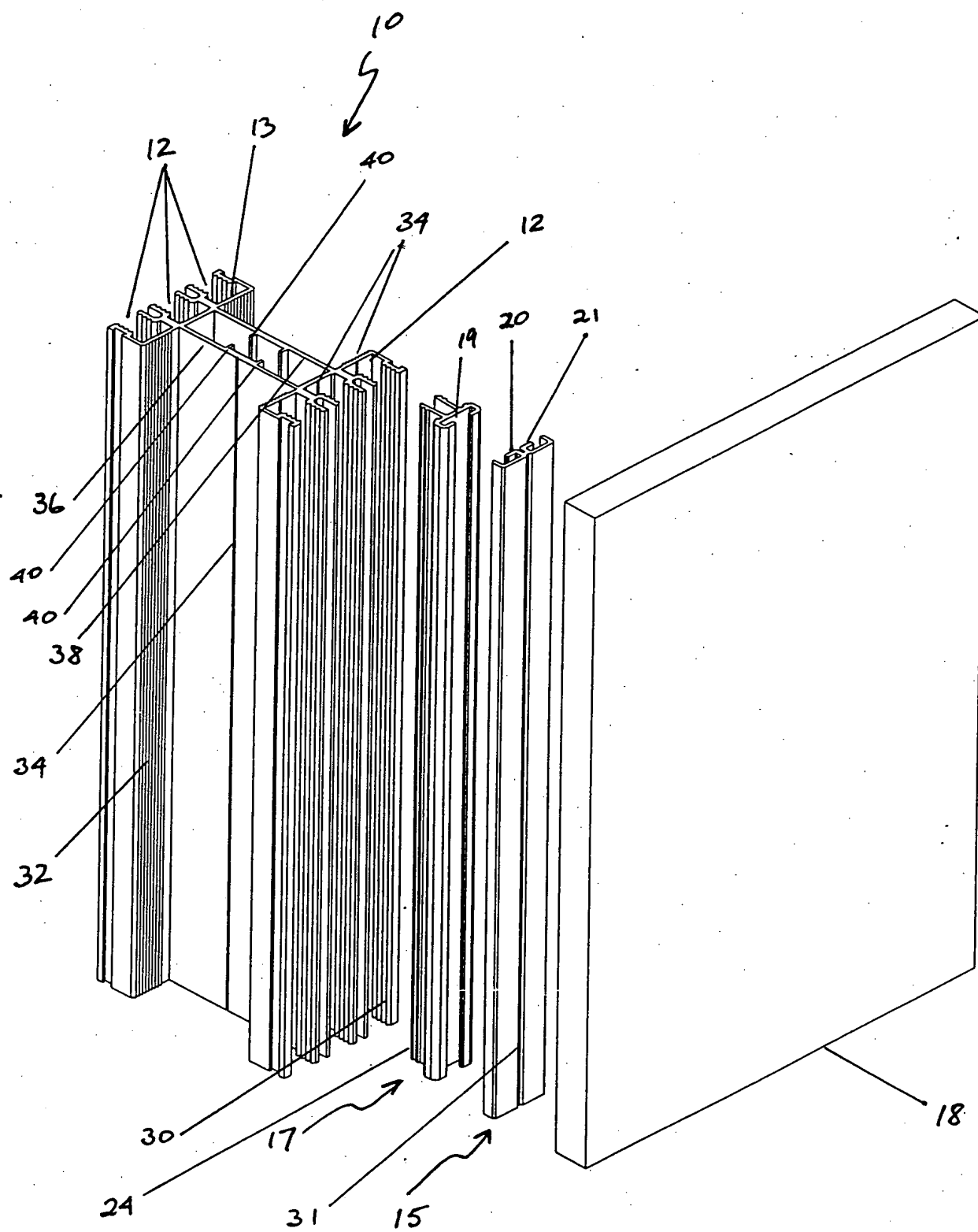


Figure 1

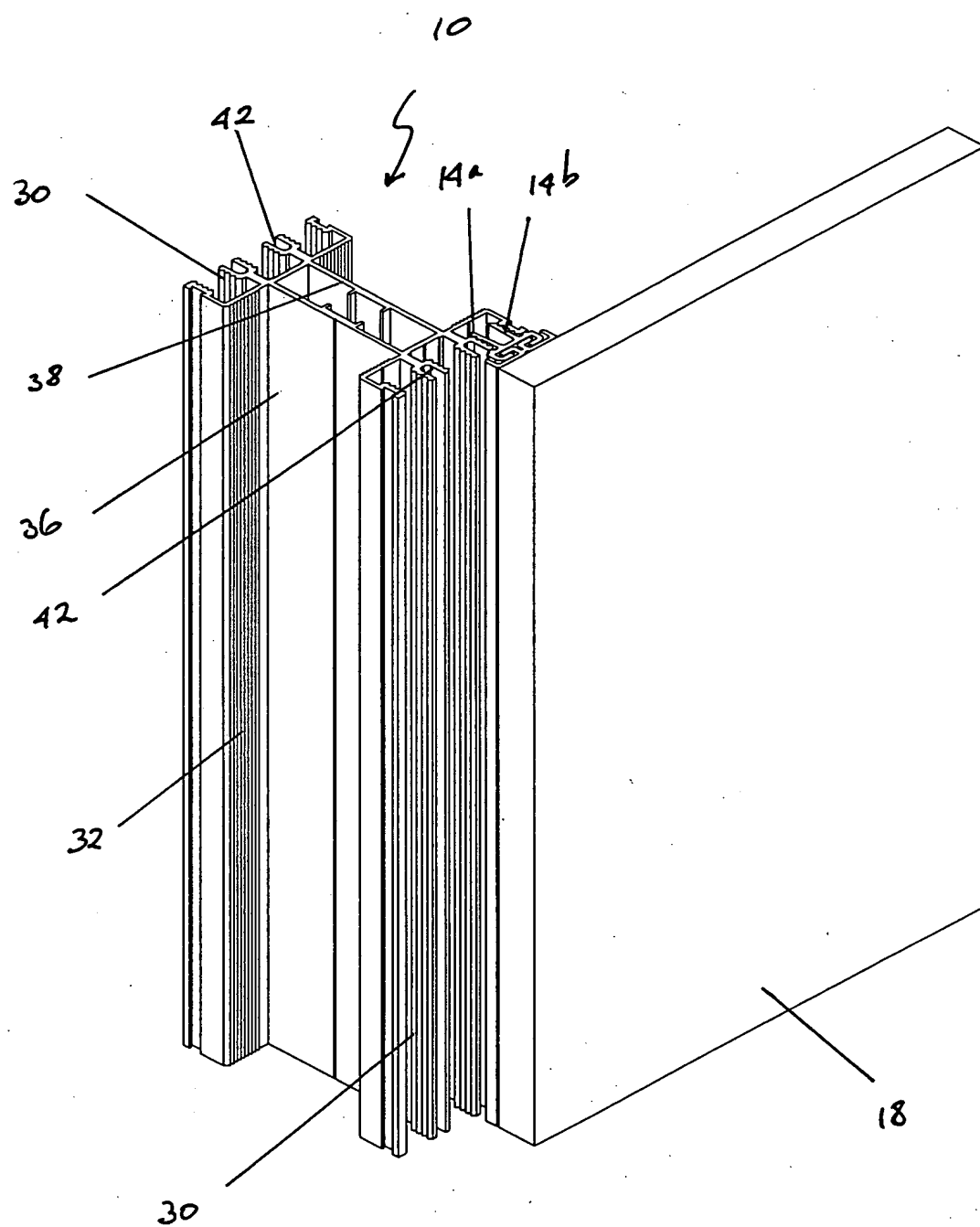
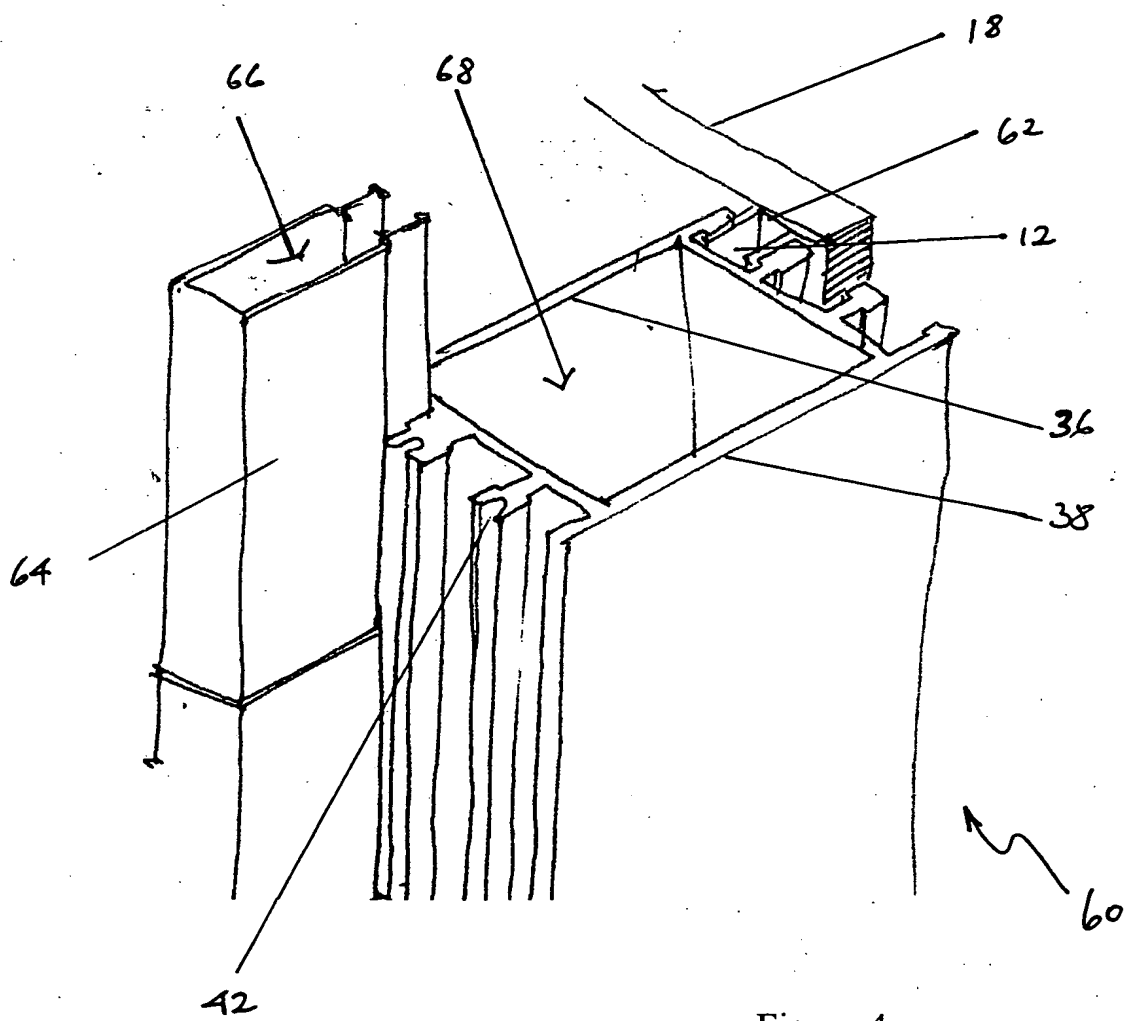
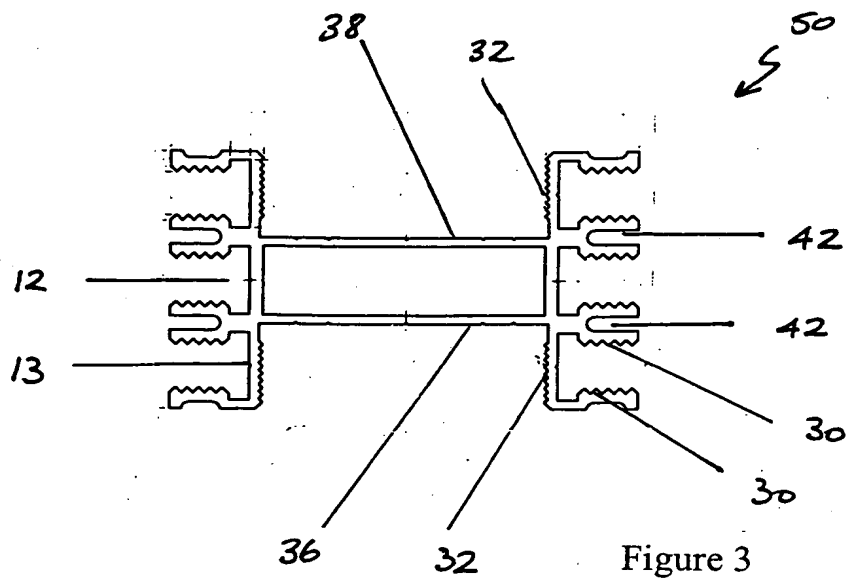


Figure 2



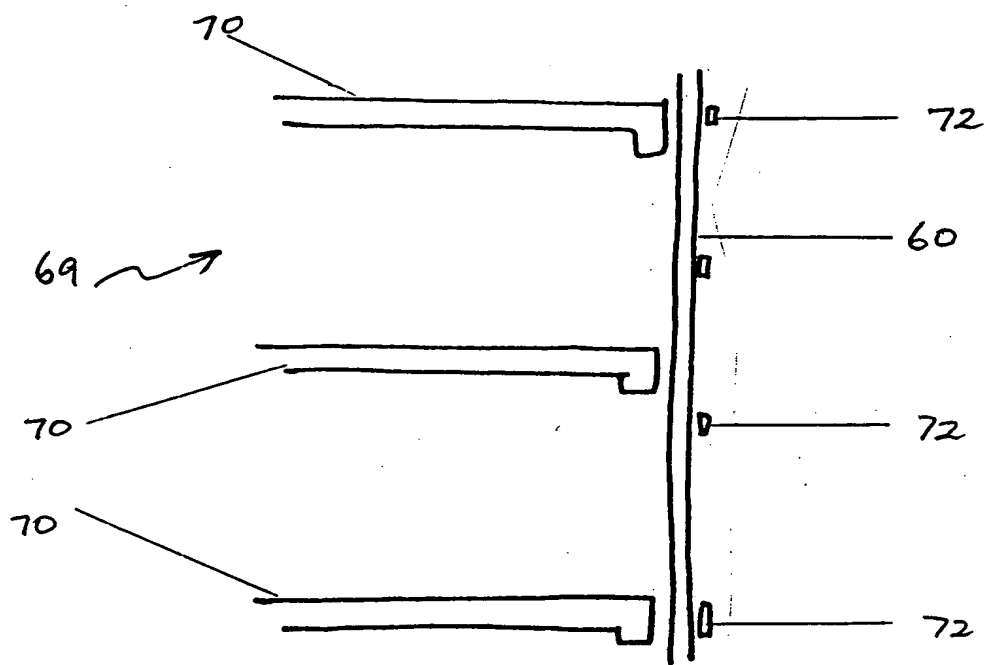


Figure 5

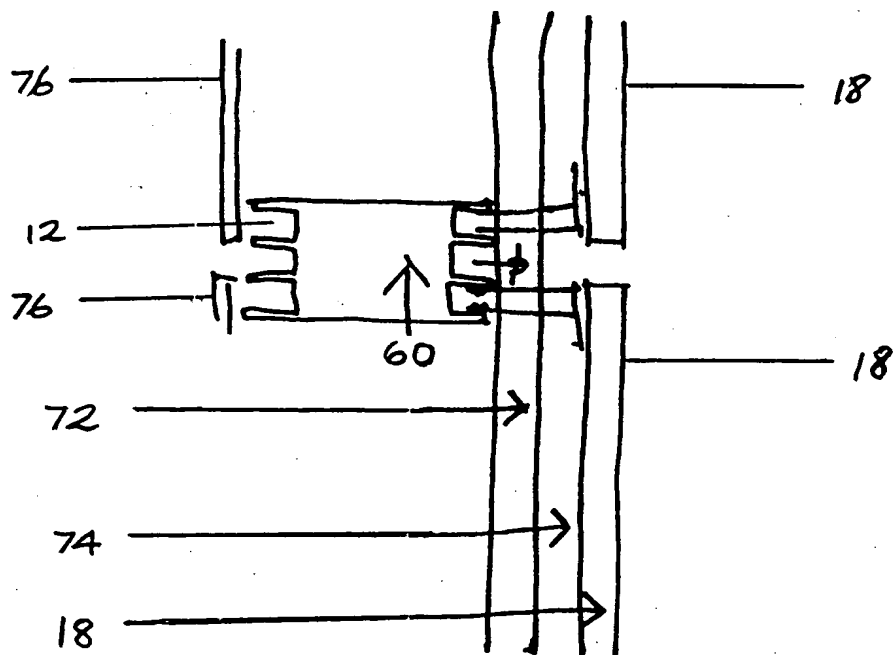


Figure 6

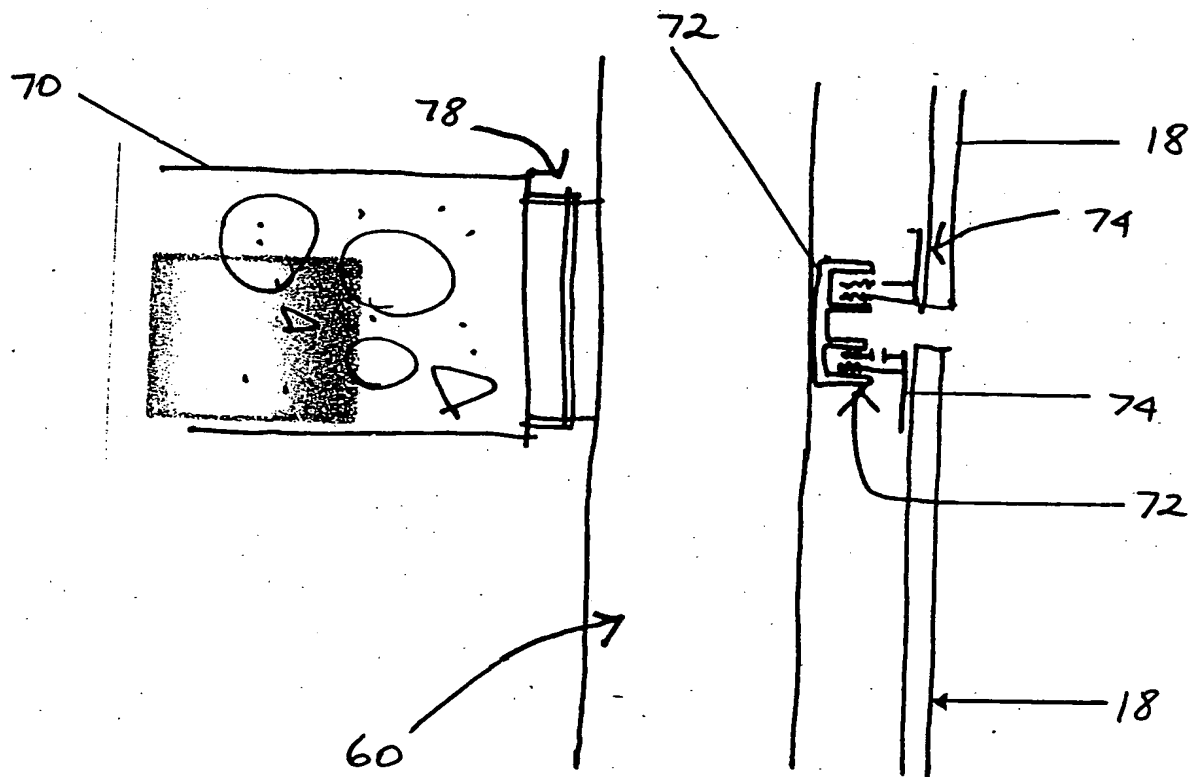


Figure 7

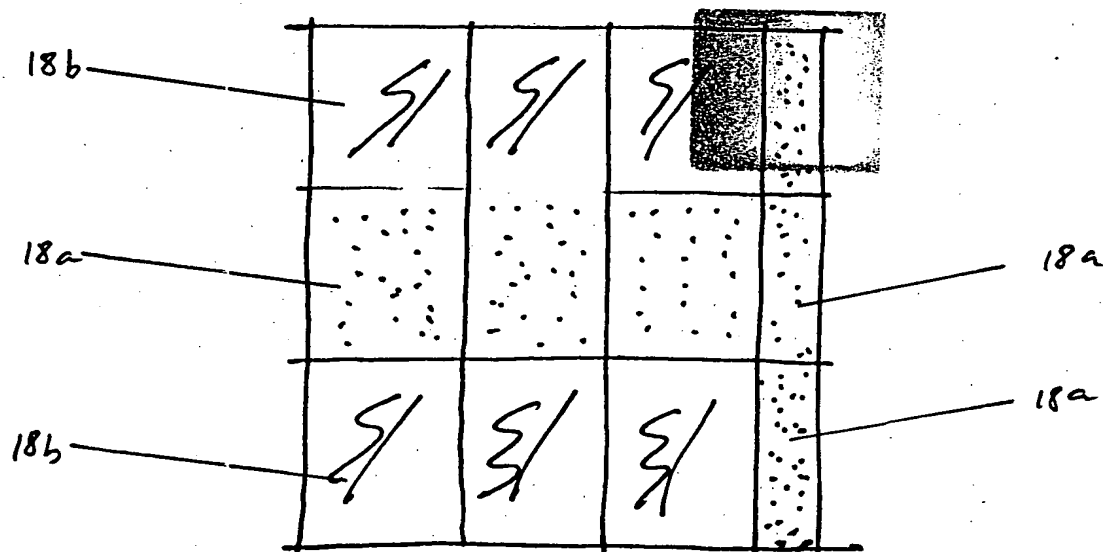


Figure 8

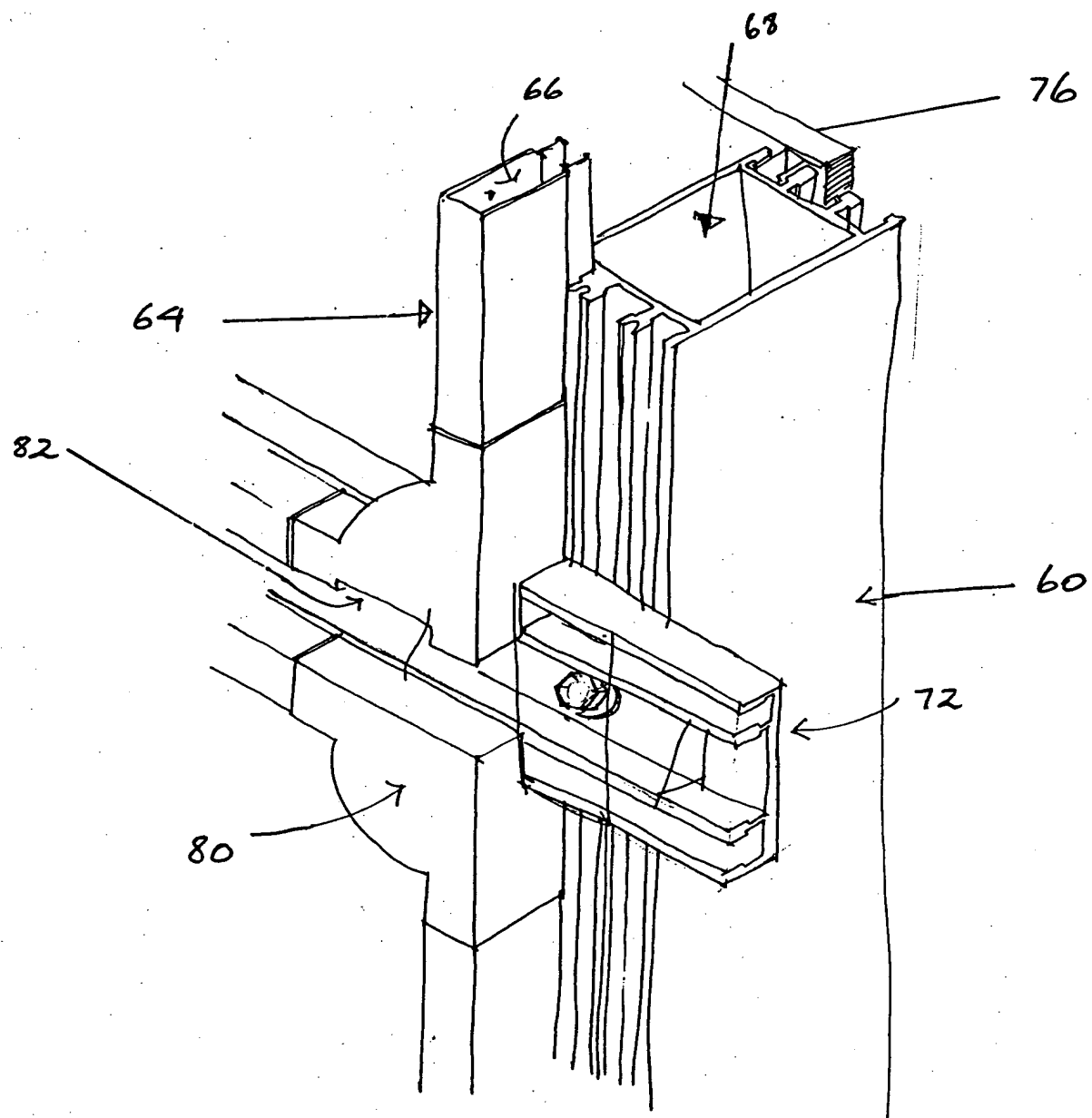
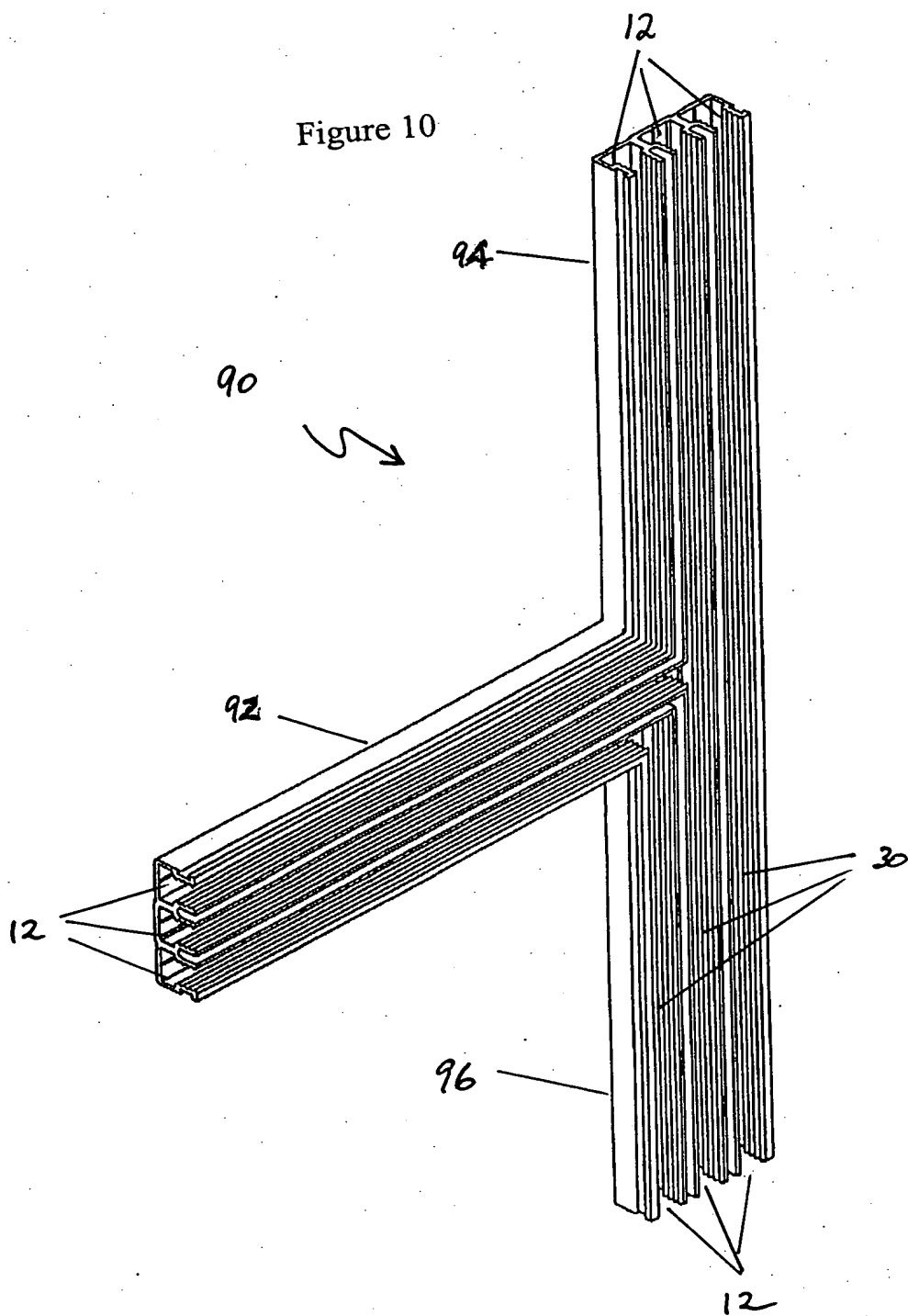
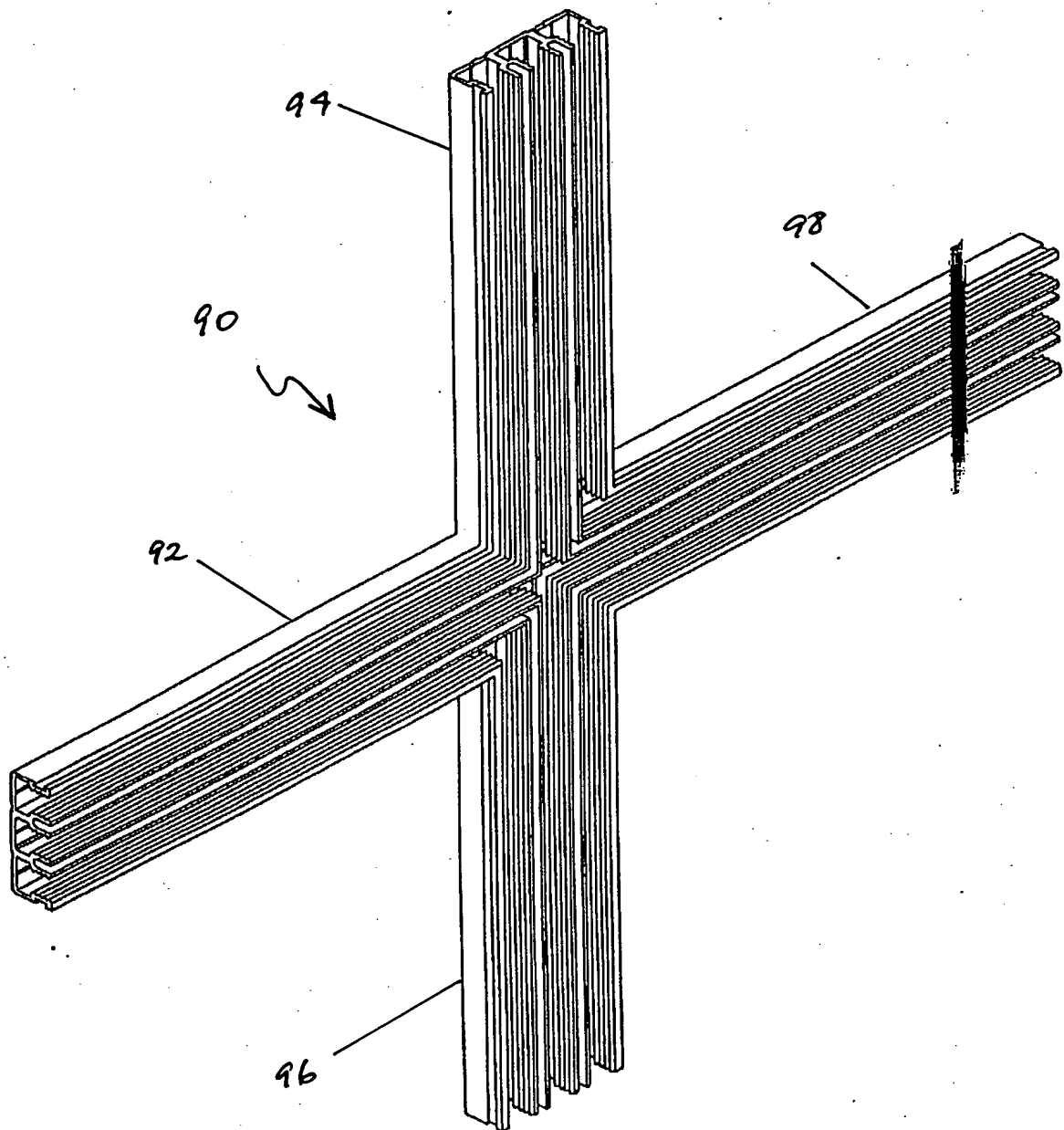


Figure 9



Figure 10



**FIGURE 11**

20-PLANE  
BRACKETS

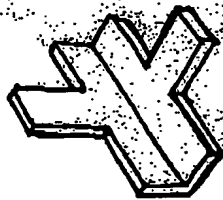


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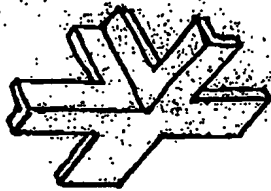
MULTI-PLANE  
BRACKETS



5. EXTERNAL-EDGE  
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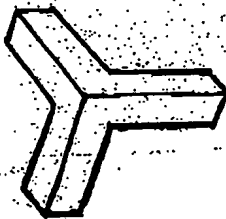
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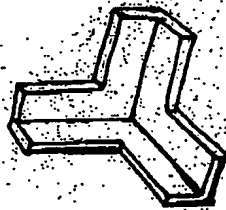
12. T-JUNCTION  
CORNER  
BRACKET



2. TEE-FORM  
BRACKET



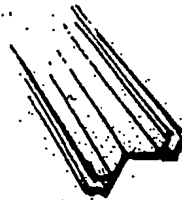
6. EXTERNAL-CORNER  
BRACKET



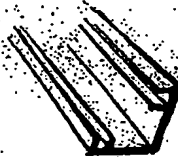
9. INTERNAL-CORNER  
BRACKET



3. ELLIPSE-POINT  
BRACKET



7. EXTERNAL-EDGE  
BATON



10. INTERNAL-EDGE  
BATON



4. BATON

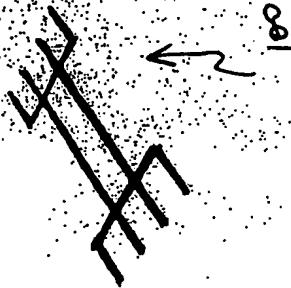
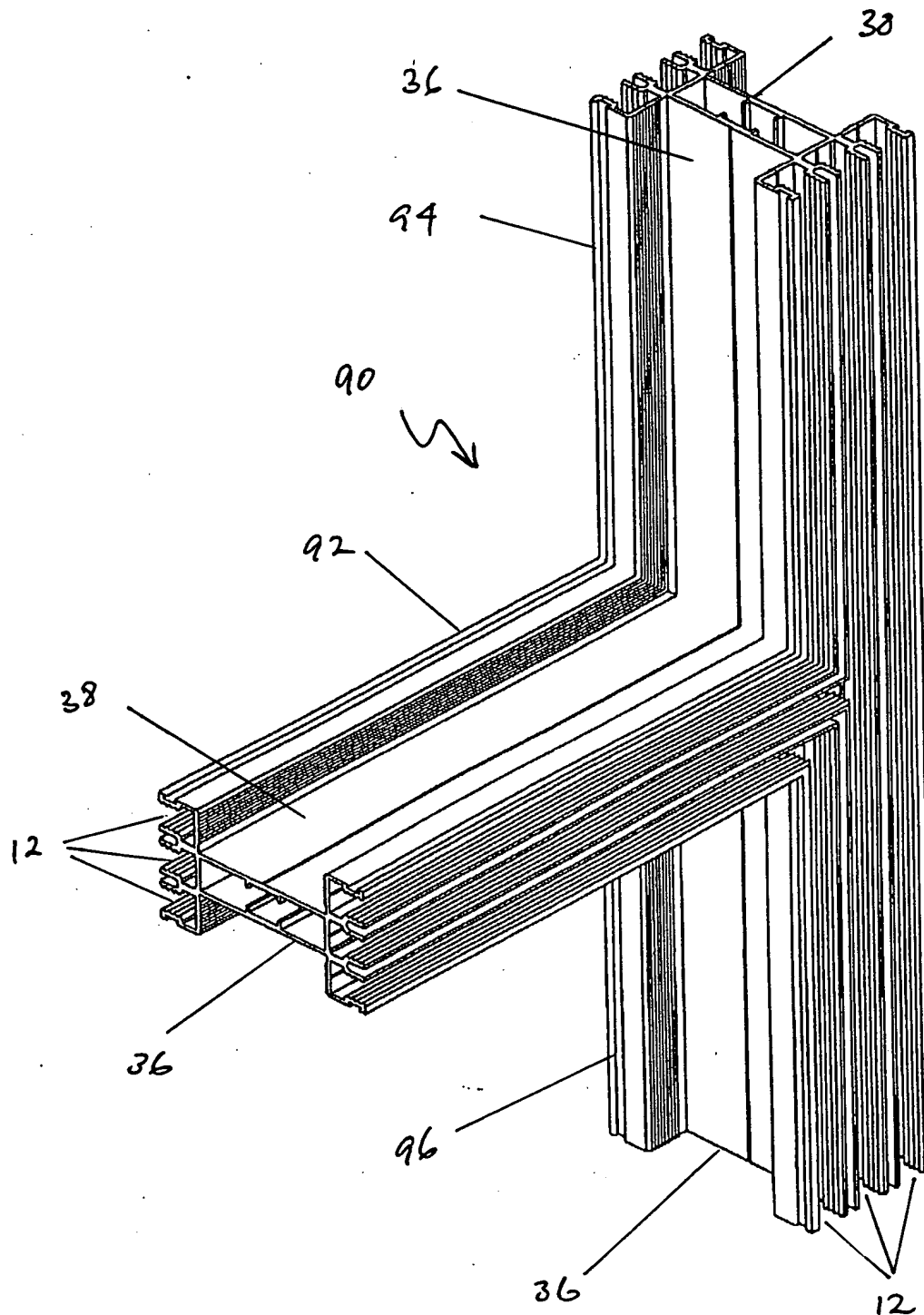


FIGURE 12



**FIGURE 13**

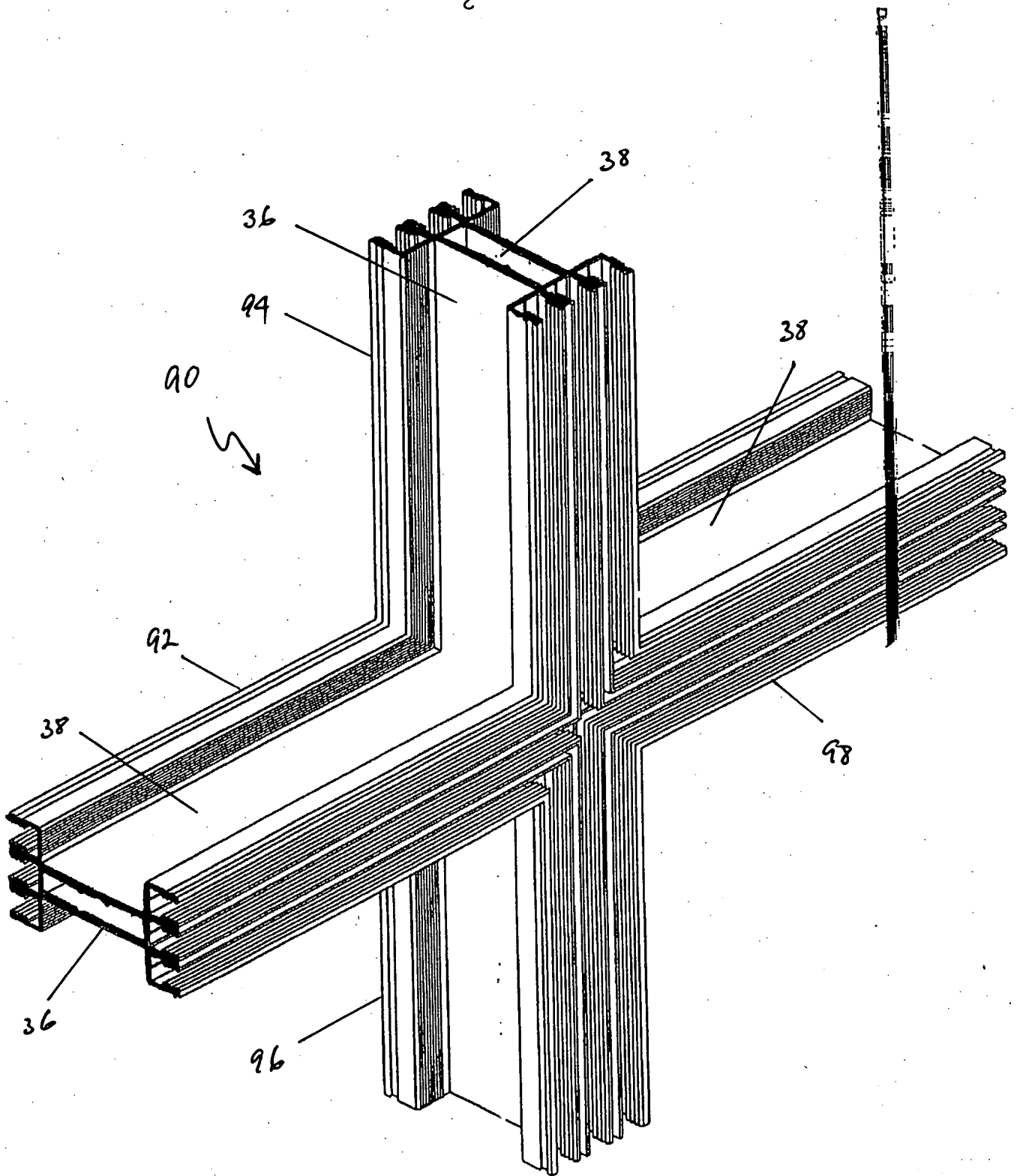
**FIGURE 14**

FIGURE 15

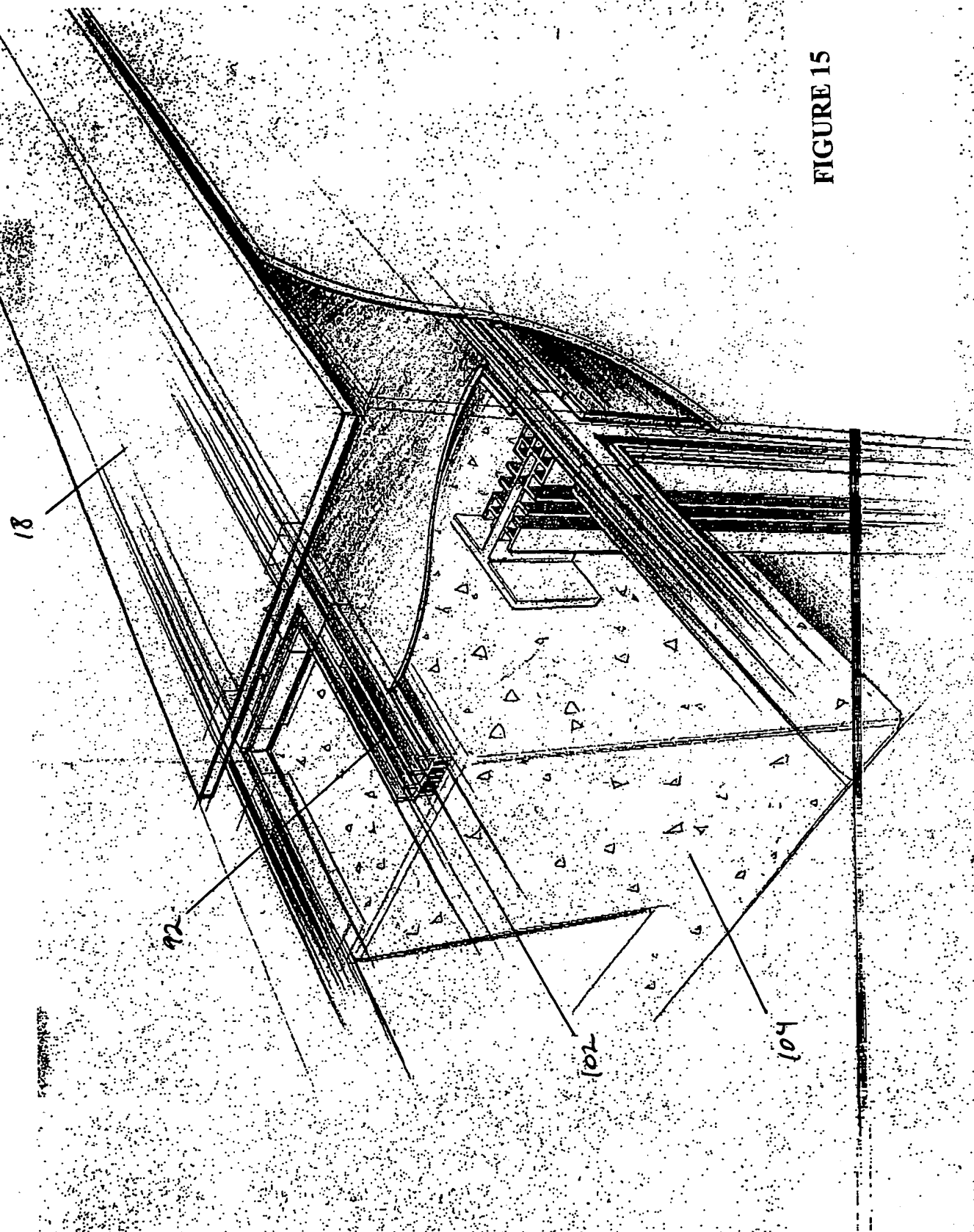
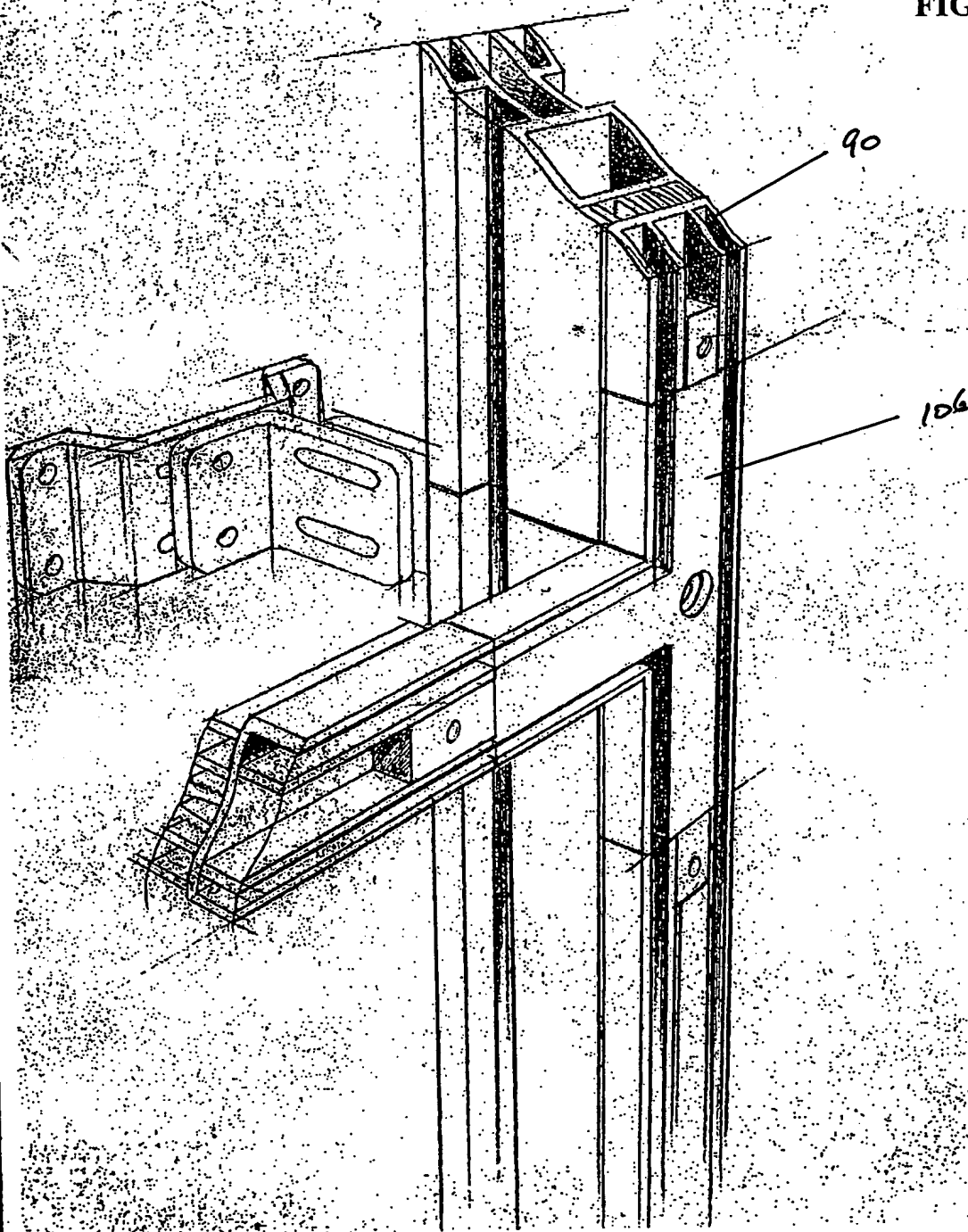


FIGURE 16



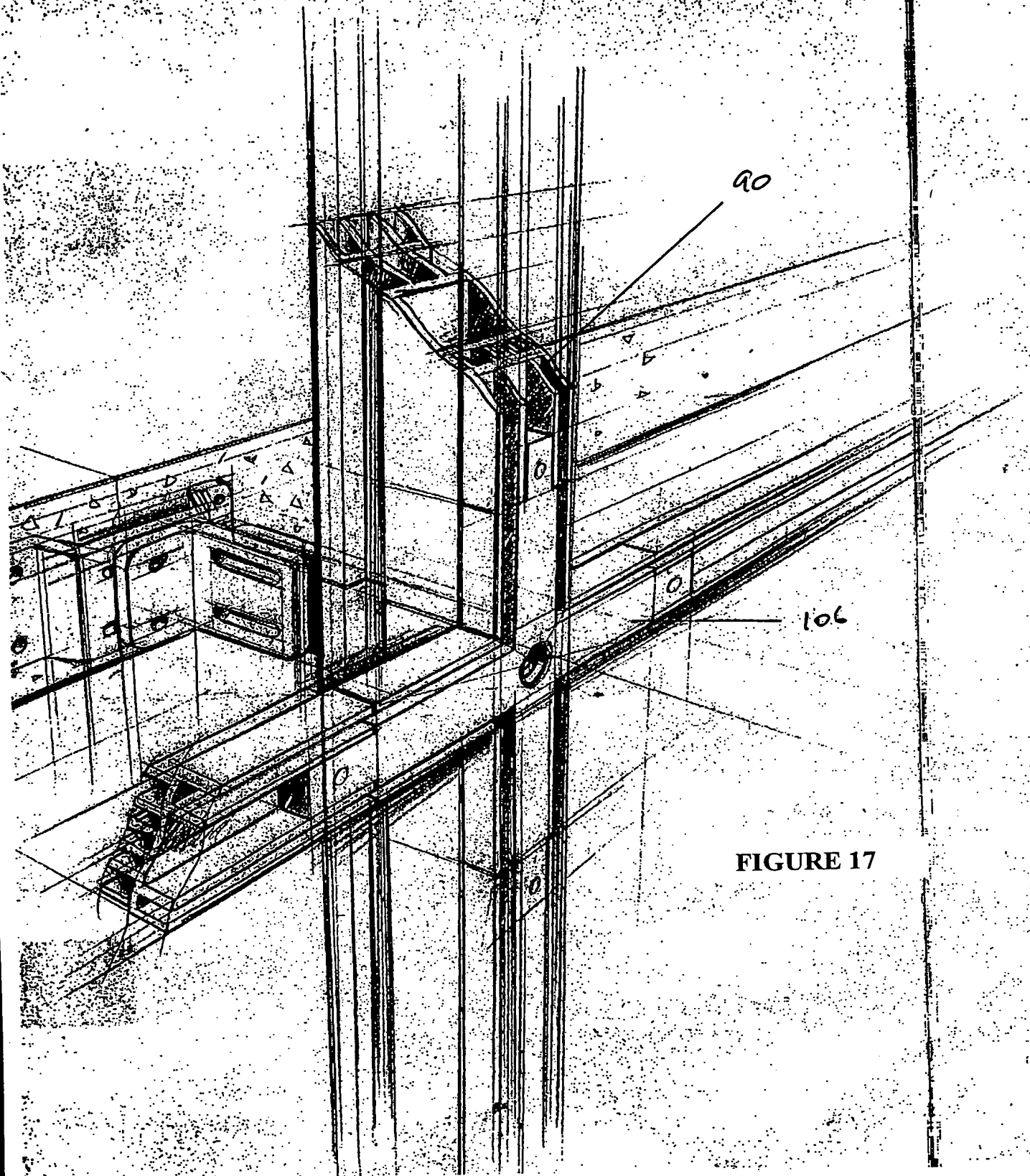


FIGURE 17



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